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09/887,455

06/21/2001

James C. Kolanek

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09/22/2004

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EXAMINER

MEEK, JACOB M

ART UNIT

PAPER NUMBER

2637

DATE MAILED: 09/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 09/887,455 | Applicant(s) KOLANEK, JAMES C. | |
| | Examiner Jacob Meek | Art Unit 2637 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 June 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>8/02, 5/02</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to because of handwritten labeling. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claim 1 – 4 are rejected under 35 U.S.C. 102(a) as being clearly anticipated by Wright et al (US Patent 6,045,896).

With regard to Claim 1, Wright teaches dividing a output signal (Figure 12, reference 11) into a plurality of output sub-band signals (see figure 12, references 13 and 14); digitizing the first output sub-band signal over a first time interval (see Figure 12, reference 13, and column 13, lines 30 - 61); digitizing the second output sub-band signal over a second time interval (see Figure 12, reference 14, and column 13, lines 30 - 61); time aligning the digitized output sub-band signals in the first and second intervals (Figure 13, references 13, 14, 131, 134 and Figure 14, 141, 142) with an estimated output signal derived from a plant input signal (see Figure 14, references 143, 144); and performing an adaptive equalization process (see Figure 20, references 201, 208, 209) using the time aligned output sub-band and estimated output signals (see Figure 20, references 202, 205, 20). Note the plant output is interpreted to be TX Signal as shown in Figure 12, reference 12).

With regard to Claim 2, Wright teaches the limitations of Claim 1 plus the addition of translating the output sub-band signal to a lower frequency prior to digitizing (See Figure 12, references 26, 27).

With regard to Claim 3, Wright teaches the limitations of Claim 2 plus the of first and second lower frequencies are the same (see Figure 5) and the translating of the first and

second sub-band signals is performed by mixing the first and second sub-band signals with oscillator signals that are locked to the same oscillator reference signal (see Figure 26, reference 262 and Column 44, lines 41 – 51).

With regard to Claim 4, Wright teaches the limitations of Claim 1, plus the use LINC RF amplifier (See Column 10, lines 34 – 40).

3. Claims 6 – 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Wright et al (US Patent 6,342,810).

With regard to Claim 6, Wright teaches an apparatus with an adaptive equalizer (see Figure 34B, reference 52, 70, 110) coupled to enhance a quality of an output signal (Figure 34, reference 106, 66, 68) into a plurality of output sub-band signals (see figure 34, signals $V_{f_{r1}}(t)$, $V_{f_{r2}}(t)$, $V_{f_{r3}}(t)$, $V_{f_{rn}}(t)$ 13 and 14); a tunable receiver (see Figure 34B, reference 106) to select different ones of output sub-band signals that make up spectrum of the output signal, and in response provide feedback to the adaptive equalizer samples (see Figure 34, ref 66, 68, 70, 110, 52) of the selected output sub-band signals to cover the entire spectrum of the output signal, the receiver having a bandwidth less than that of the output signal

With regard to Claim 7, Wright teaches the limitations of Claim 6 plus the addition of translating the selected output subband signal to a lower frequency prior to digitizing (See Figure 34, references 106, 66, 68).

With regard to Claim 8, limitations of Claim 6 as taught above. Wright also teaches a method for the acquisition of data that would cause the time alignment of signals to perform adaptive equalization (See Figure 13, reference 134)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 5 rejected under 35 U.S.C. 103(a) as being unpatentable over Wright et al (US Patent 6,045,896).

Wright teaches the limitations of Claim 1 above. Wright fails to teach the first and second intervals do not overlap. Wright does describe the details of reference 28 of Figure 12 in Figure 13 and Column 22, lines 43 – 57. From Wright's description it is feasible to set up the timing of the system so that no overlap occurs and the details of the implementation would be a design choice as described Column 22, line 58 – Column 23, line 10.

5. Claims 9 - 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wright et al (US Patent 6,342,810) in view of Wright et al (US Patent 6,045,896).

With regard to Claim 9, limitations of Claim 6 as taught above. Wright (810) fails to teach the details of his down-conversion apparatus using a digitally tuned filter at the output of the D/A converter. Wright (896) teaches a method for tuning filters of his apparatus in Figures 29 and 30. As Wright (6,342,810) has many of the identical elements of Wright (6,054,896) it would be obvious to one of ordinary skill in the art to provide this functionality.

With regard to Claim 10, Wright teaches the limitations of Claim 6 above. Wright (810) fails to teach the pair of channels and amplifiers. Wright (896) teaches these limitations as in Claim 1, and based on the similarities in the architecture could be easily supported. It would be obvious to one of ordinary skill in the art to use Wright's multi-channel system (810) to support a two-channel system.

With regard to Claim 11, Wright teaches the limitations of Claim 8 above. Wright (810) fails to specify the use of the oscillator signal. Wright (896) does specify this configuration as

described in Claim 3 above, and based on the similarities in the architecture could be easily supported. It would have obvious to one on ordinary skill in the art to use the same oscillator for down-conversion in order to simplify the design (Wright (896), Column 34 lines 41 – 51).

6. Claims 12 - 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wright et al (US Patent 6,342,810) in view of Wright et al (US Patent 6,045,896).

With regard to Claim 12, Wright teaches an apparatus with means for modifying a transfer function of a plant (Wright (810), see Figure 1, references 52, 70), weighting the output frequency sub-bands to remove unwanted components (See Wright (810) column 3, lines 10 –30), and for adaptively controlling the transfer function (Wright (810), see Figure 1, references 52, 70). Wright (810) fails to teach a means for dividing input signal to amplifiers. Wright (896) teaches a means for dividing an input signal (see Wright (896)Figure 2, reference 11). Based on commonality of these designs it would have been obvious to one of ordinary skill in the art to combine these components to allow the splitting signals into a variety of frequency bands.

With regard to Claim 13, limitations of Claim 12 above plus the addition of sequentially sampling output channels as described by Figure 13 (Wright (810)).

With regard to Claim 14, limitations of Claim 12 above plus the addition of down-conversion prior to adaptive equalization (see Figure 34, reference 66).

With regard to Claim 15, limitations of Claim 12 above plus the digitizing of sub-bands prior to equalization (see Wright (810), Figure 34, reference 68).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacob Meek whose telephone number is (571)272-3013. The examiner can normally be reached on 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571)272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JMM

TEMESGHEN GHEBRETINSAE
PRIMARY EXAMINER
8/26/07